DOCUMENT RESUME

ED 245 452 EC 162 730

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TITLE The Use of Multiple Procedures in the Integration of Students with Severe Handicapping Conditions.
PUB DATE Nov 83
NOTE 38p.; Paper presented at the Annual Conference of the Association for the Severely Handicapped (10th, San Francisco, CA, November 3-5, 1983).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Elementary Secondary Education; *Interaction; *Interpersonal Competence; *Mainstreaming; *Severe Disabilities; Socialization; *Student Attitudes

ABSTRACT

To make integration of severely handicapped students successful, efforts should be carried out jointly by regular and special educators and include programs for both regular and special education students. Suggestions are provided for developing and implementing curricular interventions, structured interaction activities, and social skill training. A training format for social skills training lists nine objectives, and an example of a lunchtime interaction training program with four adolescent males diagnosed as schizophrenic or autistic is provided. A description of an investigation of the effectiveness of multiple integration efforts (curricular intervention, interaction activities, and social skill acquisition) on the attitudes and behavior of nonhandicapped students is also presented. Six severely handicapped autistic children, ages 8-10, and third grade students housed in the same school (but not receiving special educational services) served as the subjects. Results revealed that the socialization training program resulted in significant differences for severely handicapped target and control Ss, and that the information plus experience treatment resulted in increased interactions by nonhandicapped with severely handicapped students. (CL)

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THE USE OF MULTIPLE PROCEDURES IN THE INTEGRATION OF STUDENTS WITH SEVERE HANDICAPPING CONDITIONS

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EC162730

Paper Presented

at

The Association for the Severely Handicapped

Annual Conference

10th

San Francisco, California

November 1983

Introduction

Historically, mainstreaming and integration have not been perceived as pertinent to the needs of severely emotionally disturbed students (Burton & Hiroshen, 1979; Charles & Malian, 1980). Indeed, it is unfortunate that even today authors discussing mainstreaming, normalization, and integration focus primarily on mildly handicapped individuals (Charles & Malian, 1980) and suggest that educators need not be particularly concerned with integrating severely handicapped populations in normalized settings. Other (Burton & Hiroshen, 1979) maintain that efforts to integrate these children with their nonhandicapped chronological-age peers should not be considered a salient issue.

During the past 10 years, however, major strides have been made toward integrating severely handicapped students with their nonhandicapped peers. Concurrently, legal, social, and educational impetus for integration has occurred. Gilhool and Stuttman (1978) argued that the spirit and intent of legislation pertaining to the rights of handicapped citizens did, from the very beginning, embrace integration of all handicapped people into society. From an education standpoint, Brown, Branston, Hamre-Nietupski, Johnson, Wilcox, Sontag, and Gruenwald (1977) provided rationale for integrating severely handicapped students into public schools. Finally, Blatt, Bogdan, Bogden, Biklin, and Taylor (1977) proposed that society would need to undergo a major social transition in order to bring about a meaningful integration of severely nandicapped people. Based on these impetuses toward change--legal, educational, and social--the movement toward integration of severely handicapped students into schools, neighborhoods, and communities has gained substantial momentum.

However, a growing body of evidence suggests that physical placement

alone is not sufficient to ensure that severely handicapped students receive maximum benefits from public school placement or that the concept of "least restrictive environment" is being upheld. Several researchers concerned with the severely handicapped argue that physical placement constitutes merely a necessary first step in the integration of these students (Brown, Branston, Hamre-Nietupski, Johnson, Wilcox, & Gruenwald, 1979; Hamre-Nietupski & Nietupski, 1981; Kenowitz, Zweibel, & Edgar, 1978; Newman & Simpson, 1983; Reinhardtson, 1980; Simpson, 1980). Thus research findings suggest that a least restrictive environment requires not only placement in schools with age-appropriate nonhandicapped students, but also ongoing efforts to promote positive interactions between severely handicapped and nonhandicapped students (Allen, 1980; Kenowitz et al., 1978).

If they are to be successful, such efforts must include not only programs designed to provide contact between the two groups of children (Newman & Simpson, 1983; Stainback & Stainback, 1981; Voeltz, 1980), but also informational sessions designed to impact nonhandicapped student attitudes (Newman, 1978; Donaldson, 1980; Reinhartson, 1980). Additionally, social skill programs are of importance for severely emotionally disturbed students whose withdrawn and often highly deviant behavior patterns, in combination with low functional levels, tend to prevent them from effective social interaction. Teaching socially appropriate behaviors to severely handicapped students has been found to affect changes in nonhandicapped student activities as well as increase their willingness to interact with their handicapped peers (Bates, 1980; Kerr & Ragland, 1979).

Based on these findings, innovative, ongoing, and systematic efforts are clearly necessary to ensure that severely handicapped students become an integral part of the school environment. If such efforts are to be effective, they must be carried out jointly by regular and special educators and include

programs for both regular-education and severely handicapped students.

The purpose of the following paper is to describe the use of multiple integration procedures. Specifically, the development and implementation of curricular interventions, structured interaction activities, and social skill training will be discussed. In addition, efficacy data surrounding this approach will be presented.

Curricular Interventions and Interaction Activities.

The concept of attitude change curricula is not new. A great amount of effort has been expended in the past five to ten years to develop activities or presentations which would increase nondisabled individual's awareness of disabling conditions (Forador, 1970; Yerxa, 1971). The rationale has been that sensitization to the differing needs of disabled people will facilitate greater acceptance of them by the nondisabled.

Often, however, materials designed to promote positive attitudes toward the handicapped have not been subjected to empirical verification, or have yielded equivocal results (Donaldson, 1980; Wilson & Alcorn, 1969). The Severely Handicapped Integration Project (SHIP) has attempted to develop and evaluate comprehensive curricular intervention packages for elementary through senior high levels, which focus on awareness activities and incorporate multi-dimensional strategies to effect positive attitude change. The ultimate goal of these materials is to stimulate the kinds of attitudes which will lead to positive interactions between regular and special education students.

SHIP has developed two curricula at each of the following age levels: lower elementary, upper elementary, junior high school, and senior high school. One set of curricula follows the traditional or categorical approach to attitude change, while the other offers a noncategorical approach. All eight curricula stress similar underlying concepts and

utilize the same strategies for modifying attitudes (i.e., lecture, structured discussions, simulations, and media presentations), but the thrust of the sessions differs considerably.

The categorical curricula focus on cognitive information related to specific disabilities such as etiology, characteristics, special problems, and adaptive devices used to minimize the impact of the particular disability. The initial session introduces the idea that disabilities are a form of individual difference; while all people differ from one another to some extent, they still have many things in common. Throughout the remaining sessions, which cover sensory, physical, intellectual, and behavioral disabilities, students are encouraged to see beyond the obvious differences and find similarities between themselves and disabled individuals. The thrust of these presentations is to provide information which reduces discomfort or anxiety surrounding contacts with disabled persons. Reducing anxiety permits a more relaxed atmosphere for positive attitudes to develop.

The noncategorical curricula focus on issues related to disabled persons such as individual and societal values, labeling, equality, dependency, normalization, and social change. Again, the concept of a disability as an individual difference is introduced, but rather than focus on these differences per se, the emphasis is on mutual needs or rights. Issues are personalized so that students can readily empathize with the impact of handicaps on the lives of disabled people. Students receive information which corrects misconceptions and disrupts stereotypic images in an effort to motivate them to examine their own personal belief systems and develop a more positive attitude.

Curricular interventions are one method of positively modifying regular

class students' attitudes toward people with severe handicapping conditions. Experiences, or actual contact with the disabled, can also influence attitudes of typical students. Previous research suggests that unstructured, informal contacts do not necessarily have positive results. Rather, regular contacts which have been structured to promote positive interactions and which capitalize on the disabled student's strengths can result in more favorable feelings (Donaldson, 1980; Stainback & Stainback, 1981). For this reason, SHIP developed a series of Interaction Activities to be utilized in conjunction with curricular presentations, as well as to provide suggestions for ongoing social contacts within the school environment.

The activities have been designed to foster cooperative interactions between peers with minimal teacher direction. Using typical school functions as a guide, age-appropriate activities have been selected which are mutually reinforcing to regular and special education students. In addition, these activities were modifiable to a range of differences while maintaining the capability of highlighting the strengths of special education students. In order to accomodate the widely varying behaviors of the severely handicapped, the originally chosen small-group activities were scaled down to provide increased structure in one-to-one situations, as well as expanded for use with large groups. This progression provides a kind of model for moving disabled students who demonstrate little or no social interaction skills into less restrictive, more normalized school activities (See Table 1). Ultimately, however, the purpose of these activities is to provide positive experiences between handicapped and nonhandicapped students and they are not intended to represent a social skills curriculum for special education students.

Social Skill Training

Such training has been based on the notion that acceptance of severely handicapped pupils by their peers is, in large measure, dependent upon the ability of handicapped students to respond appropriately in social situations. Accordingly, along with attemps to positively modify the attitudes and

TABLE 1: LEVELS OF INTERACTIONS

INTERACTION	ELEMENTARY MAKING PUPPETS	JR. HIGH NEW FRIENDS PARTY	SR. HIGH ATTENDING SCHOOL GAME
ONE-TO-ONE (10 minutes)	Gluing pre-cut pictures onto posterboard Attaching wooden handle	Preparing simple snack (e.g., English muffin pizzas) Preparing table	Watching practice after school Sitting on the bench
SMALL GROUP	Selecting pictures to represent characters Gluing pictures onto posterboard Trimming excess Attaching handle	Preparing simple refreshments Setting room up using ready-made decorations	Watching practice after school Sitting in the bleachers Cheering "Buying" snacks from the "concession stand"
LARGE GROUP	Drawing own character on construction paper Gluing onto posterboard Trimming excess Hole-punching joints for moveable parts Attaching body to handle Joining parts with brads	Making decorations Preparing refreshments Setting up room Preparing entertainment (e.g., music, games, etc.)	Attending game with minimal structure provided Joining in cheers Buying refreshments

INTERACTION ACTIVITIES EXAMPLES

perceptions of school staff, parents, and students toward handicapped persons there must be social skill training for the handicapped. Integration efforts which attempt to operate without this consideration seem to do so with severe deficits.

Essentially all handicapped children and youth, regardless of the type or severity of their exceptionality can be expected to require social skill training. Socially related problems may take the form of deficits (e.g. limited communication skills, lack of knowledge about suitable ways of interacting with peers, ect.) or behavioral excesses (e.g. self-stimulatory behavior, tantruming, etc.). Regardless of the nature of severely handicapped child's social needs they will improve only with closely engineered change programs. Through our research experiences we have determined that direct teaching of social skills can significantly enhance social acceptance and interactions in a building. When regular education staff and students are simultaneously exposed to attitude change curricula and experiences, such change can be dramatic.

Social skill training can be expected to yeild the most positive results when effective general teaching strategies are in use. These include:

1. Use of routine schedules
2. Use of behavioral procedures, such as the Premack principle
3. Consistency
4. Physical structure
5. Clarification of expectations

Socialization efforts based on operant conditioning principles appear to be the most efficacious. The use of these principles are based on several basic assumptions:

1. Human behavior is learned

2. Understanding and manipulating obserable stimuli and behavior is of paramount importance

3. Diagnostic labels may be independent of treatment procedures

4. The utility of intervention procedures is judged empirically

5. Operant behavior is controlled by antecedent and consequent events

The training format for social skills training follows:

OBJECTIVES:	ACTIVITIES
(1) Pinpoint and define behavior (operationally)	- List and objectively define the excess and deficit behaviors of concern. - Rank order these concerns from highest to lowest. - List and objectively define the childs positive, adaptive and desirable behavior. - Select one behavior of critical importance. CAUTION: Probability of success is a prime factor in selecting behavior for change.
(2) Evaluate situations and environments in which the behavior occurs	- Evaluate the situations, environments & circumstances under which the target behavior occurs or fails to occur.
(3) Specify contingencies presently operating	- Evaluate the reactions of others in the environment after the behavior is emitted or should be emitted.
(4) Observe & record target behavior daily	- Develop simple recording system and corresponding recording sheet. - Observe and record target behavior using system and appropriate data sheet on a daily basis. - Arrange for reliability checks on target behavior. - Make necessary adjustments in behavior definition or recording procedures.
(5) Chart & inspect target behavior data	- Devise simple visual displays (charts) for target behaviors. - Record daily observations on charts. - Inspect data for variability and trend before ending baseline period.
(6) Devise intervention plans and establish performance expectations.	- Develop appropriate reinforcing and punishing contingencies for specific target behavior. - Ideally, interventions should be: Practical, Economical, Feasible, Realistic, Applicable and Effective. - Next, establish a desired rate (frequency/day) or goal for target behavior. - Establish a desired target date for the behavior & the respective desired rates. - Establish sequentially placed interim desired rates and dates for the target behavior.
(7) Implement plans	- Apply contingencies to target behavior using: Consistency, Constancy, Immediacy - Observe & record target behavior daily.
(8) Analyze data	- Inspect target behavior with respect to desired rates and dates.
(9) Be prepared to make data based decisions in order to maintain/change intervention plans.	- Make appropriate modifications for program maintenance or change.

An example of one socialization program follows:

A Lunch Period Socialization Training Program

Educators of severely handicapped individuals are becoming increasingly aware of the need to involve students in a variety of socialization experiences and to the utilization of every available opportunity in the training of social skills. The school lunch period offers a daily opportunity for severely handicapped students to interact, although this opportunity is often not exploited to its full potential.

The following study presents a procedure which was successful in increasing the verbal language of severely emotionally disturbed adolescents. Specifically, the purpose of the study was to assess the effects of a family-style lunch program applied in a public school classroom on the conversational social behavior of four severely emotionally disturbed students. The procedures employed to facilitate the interaction process included: (a) a family-style lunch program; (b) adult praise for verbal interactions; and (c) group social instructional procedures.

METHOD

Subjects

Four adolescent males diagnosed as schizophrenic or autistic and assigned to a public school-based self-contained classroom for severely emotionally disturbed pupils served as subjects.

All subjects had been diagnosed as autistic or schizophrenic by the age of three and had been enrolled in the program for at least one year. Intellectual measures indicated each to be functioning at a moderately retarded level. Each youth was determined to be free of severe organic brain disease,

major medical problems, and severe chronic illness. The age of the youths in the study ranged from 14-7 to 17-3 (mean = 15-9 years). At the time of the study, each of the subjects was manifesting self-stimulatory responses and other aberrant behavior. In addition, their social skills were delayed; in particular, the subjects rarely initiated or responded appropriately to their teacher or peers. While the verbal abilities of the subjects varied, each was capable of communicating orally.

Observation and Reliability

A direct observation procedure was employed to assess each subject's conversational statements during a 15-minute daily lunch period for 65 consecutive school days. Daily data collection was initiated after the subjects had entered the classroom with their lunch after obtaining it in the school cafeteria. Individual daily records were maintained on the nature of each response made during the 15-minute period (initiation or response to another person), the number of words used in each response, and the total number of words verbalized during each lunch session.

A frequency count was made of all verbalizations except repetitions (e.g., "I, I, I want meat" was scored as three words), self-stimulatory responses (e.g., "ba, ba, ba, ba"), and responses made for other than the purpose of communicating (e.g., "Bozo's big top"). In addition, the classroom teacher's comments during the lunch period were observed and recorded using the same procedure. The teacher's reinforcing comments during the third phase of the study were not counted, however.

Data were recorded by a trained observer who was familiar with the classroom routine and the pupils. Checks for interobserver agreement were carried out on 16 randomly selected days. Interobserver reliability coefficients, calculated by dividing the frequency of responses observed by one

observer with those of a second recorder, ranged from .91 to 1.00, with a mean of .96. Mean agreement for each phase of the study was as follows: (a) baseline: .97; (b) family-style lunch program: .94; (c) adult praise for verbal interaction: . 93; and (d) group social instructional procedures: .97.

Procedures

The decision to initiate a social-interaction training program was based on a desire by the staff to augment the group social-interaction curriculum for the subjects. The lunch period was determined to be most suitable for such a program. Further, it was agreed that mealtime should serve a social as well as a nutritional purpose for children and adults. While each of the subjects was involved in individual and group socialization programs, no attempts had previously been made to extend such training to include lunch period. The experimental procedures were carried out in the pupils' classroom over 65 consecutive school days. The procedures employed are presented and explained in the order of the implementation.

Individual lunch service. During this phase of the program the four subjects ate their lunches from the individual aluminum trays they received from the cafeteria. Although the pupils were required to eat together at a large table in their classroom, no attempts to promote or facilitate interactions were made. Thus, while students were given the opportunity to interact, their propensity for social withdrawal made social isolation a readily available alternative.

Family style lunch program. In order to increase opportunities for social interaction, a family-style lunch program was established. In this phase of the study the subjects were required to continue to eat their lunch together at a table in the center of the classroom. However, rather than eating their meals from individual trays, the subjects were required to

follow a family-style pattern. That is, on a rotating basis, the youths were responsible for setting the group table, obtaining the individual lunch trays from the caferteria, placing the food in family-style bowls (e.g., salads from the individual trays were placed into one large salad bowl), cleaning the table following the meal, and washing, drying, and putting away the dishes and utensils. At the beginning of each lunch session the subjects were told to ask for the food they wanted. However, the youths were not otherwise required to talk in order to eat.

Adult praise for verbal interactions. During this phase of the family-style lunch program students were praised by their teacher for engaging in appropriate conversational behavior. This included any functional verbal response directed at another person which was not echolalic or self-stimulatory in nature, such as requests for food, attempts at initiating conversation, and responses made to an initiator's comments.

When students were engaged in an interaction, the teacher waited until the conversation had ceased before praising so as not to interrupt the interaction. Teacher praise took the form of saying the name of the student who was engaged in appropriate conversation and making a comment such as, "Good talking," "I liked the way you answered," etc.

Group social instruction. In an effort to train appropriate social responses, students were provided modeled imitation interaction training for 30 minutes daily for 12 consecutive days. In these sessions, which took place during a regular academic period, students were provided instruction in (a) making eye contact with the person whom they were addressing; (b) saying the person's name; and (c) asking or responding to a question. Initially, prompt cards were used with two pupils (subjects 3 and 4) whose verbal ability was low. The cards provided written cues (e.g.,

"How are you?", "Please," "I would like to talk with you," etc.) for facilitating conversation. The high verbal-ability subjects (subject 1 and 2) were encouraged to interact with the low verbal-ability youths by asking questions to which the latter group had been trained to respond. In addition, the high verbal-ability subjects were given suggestions for appropriate conversational interactions as a part of all training activities. In addition, the subjects were provided tokens, which could be exchanged for food and privileges at a later time, for participating in the training activities.

During the 12 days of the group social-instruction program, the subjects continued to receive adult praise for their lunch time social interactions. However, no lunch period data on the previously identified dependent measures were recorded until the entire social instruction training program had been completed.

The baseline phase of the study, individual lunch service, lasted 17 consecutive days in length. No individual or group performance critieria were established for moving subjects from one phase to another. Rather, at the end of each predetermined period a new treatment was simultaneously introduced to all subjects.

RESULTS

Tables 2 and 3 summarize the mean number of verbal initiations and responses, respectively, for the various treatment phase of the study. Data are provided for both the students and the classroom teacher.

Table 2

Mean Frequency of Social Initiations per Session

Subject	Phase: Individual Lunch Service	Family Style Lunch Program	Adult Praise for Verbal Interactions	Group Social Instructions
1	6.0	12.3	20.4	21.8
2	4.3	12.7	18.3	20.3
3	0	1.8	4.0	6.1
4	0	1.5	3.2	3.8
Subject Mean	2.6	7.1	11.5	13.0
Teacher	18.5	10.3	6.0	4.7

Table 3

Mean Frequency of Social Responses per Session

Subject	Phase: Individual Lunch Service	Family Style Lunch Program	Adult Praise for Verbal Interactions	Group Social Instructions
1	5.0	4.6	3.8	4.7
2	10.7	6.3	3.5	5.1
3	3.3	3.4	2.7	3.3
4	0	2.9	3.6	3.0
Subject Mean	6.3	4.3	3.4	4.03
Teacher	1.0	9.9	10.8	9.2

As revealed in Table 2, the social initiations of the youths participating in the socialization program accelerated during the course of the program. While the rather informal research design of this applied program does not allow for definitive conclusions to be drawn as to the significance or the efficacy of the individual treatment procedures, there are indications that the conditions produced behavioral changes. In particular the introduction of the family-style lunch program and the placement of students in situations which were more conducive to social interactions and teacher praise for interacting appeared to be most facilitative. While the social instruction treatment condition was associated with an increase in social initiations for each of the subjects, increments were not as large as with the other conditions.

Results also suggested that the teacher's initiations progressively decreased during the course of the study (see Table 2). As per her own expectations, the teacher was able to assume less responsibility for initiating conversations as the students themselves began to respond more.

The data shown in Table 3 suggest that the subjects either exhibited little change in the frequency of their responses or decreased on this measure across the phases of the program. The data on the teacher, on the other hand, reveal a pattern opposite that of her students. While the data and design do not allow for drawing conclusive inferences, it is possible that this phenomena arose beacuse the students progressively directed their questions and comments to the teacher. Thus, while the program may have been successful in increasing the frequency of student initiation of conversation, they tended to direct their comments toward the teacher. Accordingly, the teacher was faced with the task of responding to a variety of questions from her students without seeing a generalized tendency for other pupils to

become involved in a particular question, and without noting any initiation overtures on the part of students toward the other youths in the class.

The mean number of words spoken per session by the subject and the mean number of words per comment for each session are presented in Tables 4 and 5, respectively. As shown in Table 4, the number of words verbalized increased progressively over the course of the various treatment conditions. In addition, the implementation of the treatment conditions was associated, in general, with a progressive increase in the number of words per comment. This increase was particularly evident in the students with deficient verbal abilities (subjects 3 and 4).

Tabel 4

Mean Number of Total Words Spoken per Session

	Phase			
Subject	Individual Lunch Service	Family Style Lunch Program	Adult Praise for verbal Interactions	Group Social Instructions
1	51.7	82.3	129.5	143.7
2	43.5	76.3	88.3	105.7
3	3.5	13.6	15.1	35.7
4	0	9.1	13.3	13.3
Subject mean	24.68	45.33	61.55	74.60

Table 5

Mean Number of Words in Each Comment per Session

Subject	Phase			
	Individual Lunch Service Program	Family Style Lunch	Adult Praise for verbal Interactions	Group Social Instructions
1	4.7	4.9	5.4	5.4
2	2.9	4.0	4.1	4.2
3	1.1	2.5	2.3	3.8
4	0	2.0	2.0	3.0
Subject Mean	2.18	3.35	3.45	4.1

DISCUSSION

Educators of autistic and autistic-like children and youth are becoming increasingly sensitized to the need to involve their pupils in a variety of socialization experiences and hence to utilize every available opportunity to train social skills. While structure and control strategies, including procedures for reducing distracting stimuli and individualization, must obviously be program considerations, so must the necessity of training those social responses necessary for survival in normalized settings. These considerations are particularly significant for severely emotionally disturbed youth and young adults, groups distinguished by their socialization deficits and peculiarities.

Results of the present study, albeit inconclusive, generally support the use of a set of procedures that can be applied by classroom teachers concerned with facilitating the social development of severely emotionally disturbed adolescents. The methodology reported here was found to be particularly functional because: (1) it required minimal outside

resources; (2) it took place in a public school environment; and (3) it relied on such techniques as social reciprocity, social reinforcement, and modeling.

As noted previously, the research design used in this study precludes the conclusion that the various treatment procedures were responsible for increasing the mean frequency of social initiations; increasing the total number of words emitted per session; and expanding the length of utterance. Nonetheless, in spite of a deficit in the scientific rigor of this investigation it must be acknowledged that the program was associated with gains on factors of major significance. Accordingly, while educators must be cautions in interpreting data of studies with design flaws they must nonetheless be willing to acknowledge the importance of developing creative and functional means for enhancing the socialization skills of severely emotionally disturbed pupils. Only with such a receptive attitude will children and youth be exposed to every possible socialization experience and the eventual identification of the factors most associated with social growth and development.

Interestingly, only the mean frequency of social responses failed to improve during the course of the program. As noted previously, this pattern may have been a result of the subjects' initiations being directed at the teacher as opposed to peers. However, it is speculated that additional application of the procedures might have resulted in increased interactions among the students themselves. Further, since the social reinforcement procedures were directly associated with an increase in the initiations directed towards the teacher, students might be required to learn to reinforce one another for responding to facilitate

the interaction process.

The group procedures utilized in this study appeard to be successful with both those subjects possessing sufficient social repertoires but deficient social performance (subjects 1 and 2) and those with deficient social repertoires (subjects 3 and 4). Subjects 1 and 2 manifested social performance deficits in spite of demonstrating rudimentary social skills. The more severe pupils (subjects 3 and 4) possessed inadequate social and verbal skills. While the more verbal and socially competent subjects demonstrated greater increases during the various stages of the study, their less verbal and socially competent peers actually made larger percentage gains in a number of areas. Hence, the group procedures appeared to be efficacious with a variety of severely emotionally disturbed pupils in spite of only minimal individualization efforts.

Finally, the generalization of the group social-instruction procedures to the lunch situation is encouraging. That is, even though the group social instruction occurred within the regular academic day, it appeared to carry over and facilitate lunch time interaction. While the overall generalizability of the described procedures remains an empirical issue, the data related to the question, although minimal, must nonetheless be optimistically perceived.

Efficacy

While there have been attempts to measure the effectiveness of programs designed to enhance the status and acceptability of children with severe handicapping conditions in integrated settings, no investigations to date have sought to determine the efficacy of multiple interventions (Simpson & Newman, 1983; Voeltz, 1980). Therefore, in order to assess

the effectiveness of multiple integration efforts on the attitudes and behavior of nonhandicapped students, and investigation measuring the effects of a curricular intervention, interaction activities, and social skill acquisition was undertaken.

Description of Sample: Both nonhandicapped and severely handicapped pupils served as subjects. The two target groups were drawn from a representative school housing severely handicapped pupils in a midwestern school district.

Six severely handicapped children (4 males and 2 females) who were housed in one classroom and diagnosed as autistic served as the severely handicapped subjects. These pupils ranged in age from 8 to 10. Each manifested disturbances of developmental rate and/or sequence; disturbances of responses to sensory stimuli; disturbances of speech, language and cognitive capacity; and disturbances in capacity to relate effectively to people, events and objects.

As a part of the study severely handicapped subjects were assigned to either a social skill training or control group. The subjects for the two groups were matched to form three pairs based on the following criteria: (a) overall functional level; (b) expressive and receptive language development; (c) degree or frequency of deviant behavior patterns; and (d) degree of social isolation. Matching was carried out as a result of meetings with teachers, direct observations over several months, and concurrence of project staff and classroom teachers.

The nonhandicapped subjects in this study were enrolled in the two third-grade classrooms in the school housing the severely handicapped students. This grade level was chosen because the ages of the students in the classes approximated the ages of the severely handicapped subjects.

Random assignment designations were made to determine which class would constitute the experimental and control groups. In addition, random assignment of students within the experimental group determined the experimental subgroup which received both cognitive information and direct experiences with severely handicapped pupils. The ages of the students in the two classrooms ranged from eight to nine. Both male and female pupils participated, and only students not receiving special educational services were included in the study. The subjects were Caucasian and generally from a middle-class socioeconomic background.

Nonhandicapped subjects were randomly assigned to one of two treatment conditions for modifying their attitudes toward the handicapped or to a control group. Specifically, the subjects in the treatment groups received either information about handicapped children or the information along with planned experiences with the severely handicapped subjects.

Measures: Acceptance scale. The instrument used to measure regular-student attitudes was an upper-elementary Acceptance Scale developed by Voeltz (1980) specifically to determine nonhandicapped student attitudes toward handicapped students. The scale was patterned after such instruments as the E-Scale, designed to measure ethnocentrism, and the C-Scale, which measures conservatism (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1964; Lapsley & Enright, 1979). These features, ethnocentrism and conservatism, were reported to be ideal for use in measuring children's attitudes (Voeltz, 1982).

Within a set of 34 sentences, the Acceptance Scale consists of 30 phrases designed to reflect randomly varied positive and negative attitudes concerning individual differences and handicapped children. In addition to the 30 acceptance items, two comprehension items and two common classroom rule items are included to provide an indication of social desir-

ability responding or conformity, and to disguise the survey's purpose.

Behavior observation checklist. A frequency count was taken daily to determine the frequency and type of interaction initiated by nonhandicapped subjects with the severely handicapped subjects. Data on positive-negative interactions of male-female subjects in all three regular education student groups (Information, Information/Experience, and Control) were obtained during an unstructured activity time with severely handicapped children who had been exposed to a socialization training program or control experience. Throughout the study free-operant data were collected during an after-lunch recess of approximately 30 minutes. Data for each subject were taken daily for a period of 10 minutes by trained research assistants using a 10-second observe, 5-second record interval system. Reliability data were obtained once a week for the entire study by trained observers. Criteria for acceptable reliability was set at a .90 level prior to the initiation of the study.

Individuals involved in data collection, as well as administration of the attitude scale, were SHIP staff members who had undergone extensive testing and data collection training.

Design: A 3 x 2 factorial analysis of variance (Ferguson, 1976) was employed to investigate attitude differences in nonhandicapped students toward the handicapped as a function of curricular intervention, direct experiences with severely handicapped pupils and the sex of the nonhandicapped students. Further, a 3 x 3 x 2 factorial analysis of variance with repeated measures on the last two factors (Winer, 1971) was used to assess differences in positive initiations by nonhandicapped subjects as a function of a curricular intervention and direct structured experiences with severely handicapped pupils and socialization training with the severely handicapped.

This design was selected as the most powerful and appropriate means for assessing the data. The existence of control groups compensated for maturation.

Procedures and Analysis: In October, 1982, both nonhandicapped and severely handicapped subjects were chosen. As previously indicated, nonhandicapped students from two third-grade classes were randomly assigned to one of three groups: Control, information, and information/experience. The six severely handicapped students selected were matched to form three pairs which were randomly assigned to either control or socialization conditions. A description of each of the nonhandicapped and severely handicapped experimental and control conditions follows:

Nonhandicapped-subject-control-group. These students received no curricular or structured experiential interventions. They were, however, provided the same opportunities as the experimental subjects to interact with the severely handicapped students in free-operant settings.

Nonhandicapped-subject-information-group. Regular-education students assigned to this group were provided opportunities to interact in settings identical to those available to the control group. In addition, they received an age-appropriate curricular intervention, which included the presentation of cognitive information about disabilities, as well as discussions related to issues surrounding personal observations of or interactions with the severely handicapped students in the school. curriculum was designed to impart knowledge and foster positive attitudes about handicapped people in general, and severely handicapped students in particular. The intervention program consisted of 16 sessions offered over eight consecutive weeks. Each session lasted approximately one-half hour.

Nonhandicapped-subject-information-experience-group. Regular education students assigned to this group received the same curricular intervention as the information group and the same opportunities to interact with severely handicapped students as the information and control groups. In addition, these third graders were provided structured opportunities for interacting with the severely handicapped students. These activities included games, art projects, and cooking projects. The experiential sessions were closely monitored and structured by the special education teacher and SHIP staff to ensure a controlled, positive experience.

Severely-handicapped-control-group. These subjects received the usual instruction in the special education classrooms but were not subjected to intensive socialization training. However, they were daily given periodic opportunities to interact with regular-education students.

Severely-handicapped-socialization-group. In addition to opportunities for interaction with regular-education students during free time and the scheduled recess periods, the three severely handicapped students randomly assigned to the socialization group received and overcorrection program designed to increase their social skills. Three related interaction skills were taught in sequence through the use of a positive practice overcorrection program: (a) eye contact; (b) response to greetings: and (c) initiation of greetings.

The training sequence for each skill consisted of several steps. First the student was approached by the teacher, para-professional, or regular-education students. At this point, depending on the treatment phase in effect, the severely handicapped target subjects were required to either: (a) make eye contact and respond to a greeting; or (b) make eye contact and initiate a greeting. If the target subjects completed the response or initiation sequence

successfully, they received praise. If they did not complete the sequence, the teacher or trainer instructed them to practice the correct response five times. Correct responding consisted of "Hi, (person's name)."

Data Collection: Immediately prior to the implementation of treatment procedures for nonhandicapped and severely handicapped subjects, free-operant observational data were collected on the playground for 10 minutes daily for 15 consecutive days. During baseline and throughout treatment, trained project staff collected data on the frequency and type of interaction. The training of personnel consisted of informational sessions on the use of the observation instrument and trial sessions during actual recess times requiring recording the interactions between nonhandicapped and special education students not involved in the study. These practice sessions continued until each observer was reliable at the .90 level.

The free-operant observation procedure allowed initiations to be categorized as verbal, physical, positive, and negative. Besides, it included the identification of the specific regular or special education student. Numbered tags worn by the nonhandicapped students throughout the study allowed identification of each student. Reliability data were calculated on an interval-by-interval agreement-disagreement basis following the formula of the number of agreements divided by the number of agreements plus disagreements. Weekly reliability checks conducted throughout the study averaged 92.4% with a range of 83% to 100%.

Following the collection of baseline data, the curricular intervention for the third-grade subjects assigned to the information and information/experience groups was introduced. Four days after the initiation of the curricular intervention, the group randomly chosen to receive information plus experience sessions began a series of structured activities with six

severely handicapped students, which lasted seven weeks. Within one week of the start of the curricular intervention, and following 10 days of baseline data, the socialization program was initiated with the target severely handicapped subjects. Treatment one, the training of eye contact, was effected for five days followed by training for response to greetings, which lasted for eight days. The final treatment phase, initiation of greetings, comprised the last eight days of the training. The duration of the socialization treatment program was six weeks.

At the conclusion of the curriculum, experience sessions, and socialization program, and immediately following the collection of free-operant observational data, the upper-elementary version of the Acceptance Scale was administered to both experimental and control regular-education subjects.

Hypotheses: Ten hypotheses were identified to structure the investigation of attitude and behavioral differences in nonhandicapped students toward their handicapped peers as a function of previously identified treatment procedures. As a part of the investigation, a paper-pencil attitude measure was used to determine if changes, as measured by this scale, could be detected in the scores of nonhandicapped subjects as a result of:

1. a curricular intervention and direct structured experience with severely handicapped students;
2. the sex of the nonhandicapped subjects;

In addition, direct observation procedures were employed to determine the effects of:

1. a curricular intervention and direct structured experience with severely handicapped students;
2. socialization training with severely handicapped pupils

on the frequency of positive initiations of regular education subjects.

A .05 level of significance was used for each hypothesis.

Results:

Socialization Intervention: While the primary purpose of the validation effort was not to assess the impact of overcorrection procedures on the development of social skills in severely handicapped children, the success of this intervention was prerequisite for assessing its impact on nonhandicapped student initiations. Accordingly, prior to any other research efforts, a positive practice overcorrection procedure was implemented with the severely handicapped subjects for the purpose of teaching a series of greeting skills.

Below are the mean percentages of responses and initiations of the target and control subjects (Table 6)

Table 6

Mean Percentage Values of Responses and Initiations
During all Experimental Phases for SH Target and Control Subjects

Subjects		$\bar{X}$ Percentage			
		Baseline	Eye Contact	Resp. Greet.	Init. Greet.
Target Subjects	Response	32.96	65.99	78.87	91.31
	Initiations	49.54	79.60	90.29	91.58
Control Subjects	Response	30.58	39.46	45.79	39.06
	Initiations	30.79	33.47	31.79	47.87

These data support that the socialization training program did in fact result in significant differences for the severely handicapped target and control subjects.

Analysis of acceptance scale scores: In order to determine any changes in the attitudes of nonhandicapped children as a function of the curricular intervention, direct interaction experiences with severely handicapped students, or the nonhandicapped students sex, scores on the upper-elementary version of the Acceptance Scale were analyzed by mease of 3 x 2 factorial analysis of variance

design. A harmonic mean solution was employed in conjunction with the two-way ANOVA to adjust for unequal cell sizes. The results of this analysis are shown in Table 7.

Table 7

Analysis of Variance for Acceptance Scale Measures

Source of Variance	Sums of Squares	Degrees of Freedom	Mean Square	F	P
A (Curricula)	747.97	2	373.985	6.94	.05
B (Sex)	138.37	1	138.37	2.57	.05
A X B	283.42	2	141.71	2.63	.05
Error	1995.17	37	53.92		

This analysis revealed that the primary treatment effect (a) was satistically significant ($P < .05$). Further analysis revealed that overall for males are females combined, the nonhandicapped students comprising the information/experience group scored higher than the information-only group, and decidedly higher than the control group. The results revealed nonsignificant statistical differences for the sex main effect (B) Factor ($P > .05$). Consequently, the sex variable was excluded from the analysis of behavior initiations. Finally, the interaction effect was found to be statistically nonsignificant ($P > .05$).

Behavioral Initiations: Analysis of positive initiations by nonhandicapped subjects by means of a 3x2x2 repeated measures ANOVA are shown in Table 8.

Table 8

Analysis of Variance for Behavioral Initiations

Source of Variance	Sums of Squares	Degrees of Freedom	Mean Square	F	P
A (Treatment)	0.51934	2	0.25967	7.10	<.05
B (Phase)	1.17248	1	1.17248	57.95	<.05
C. (Special Trng.)	0.62954	1	.62954	45.88	<.05
AB	0.57068	1	0.28534	14.10	<.05
AC	0.18250	2	0.01925	6.65	<.05
BC	0.31169	1	0.31169	31.13	<.05
ABC	0.21735	1	0.10868	10.85	<.05
Error	0.41050	42			

As a function of the treatment, nonhandicapped students receiving information plus experience demonstrated a higher number of positive initiations than did the information group. Additionally, both the information/experience and information-only groups evidenced a higher number of positive initiations than did control students.

The significant phase effect, Condition B suggests that either the treatment variable or socialization factor can be considered responsible for the significantly higher mean scores during the treatment phase of the study.

The C main effect, or severely handicapped subject socialization intervention, reveals that severely handicapped subjects involved in the greetings training program received significantly more positive initiations from the nonhandicapped students than did the matched control group of severely handicapped subjects. This finding is particularly important considering the relative paucity of research surrounding the effects of socialization training on the behavior of nonhandicapped peers.

The significant A x B interaction indicates that regular education students receiving information plus experience initiated interactions at a higher frequency during the treatment phase than did subjects in the information-only group. Nonhandicapped subjects making up that control group initiated interactions with severely handicapped students at a frequency lower than that of

the other two treatment groups.

The significant treatment by severely handicapped socialization interaction (A x C) indicates that the regular education subjects in the three treatment groups initiated interactions at a higher frequency with the severely handicapped subjects who received direct socialization training.

The significant B x C interaction indicates that nonhandicapped subjects indicated interactions with severely handicapped target and control subjects at a higher frequency during treatment than during the baseline phase. In addition, overall, target severely handicapped students received initiations from nonhandicapped subjects at a higher frequency than did control severely handicapped subjects.

Finally, the significant A x B x C interaction suggests that nonhandicapped subjects initiated at a higher frequency: (a) during the treatment phase, (b) with severely handicapped students receiving socialization training; and (c) after receiving the information/experience treatment.

The data clearly revealed the efficacy of providing socialization training for severely handicapped subjects along with information about and experiences with severely handicapped children as a vehicle for positively modifying the attitudes and behavior of nonhandicapped students toward their exceptional peers. The data and design eliminate other logical interpretations of these data.

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